

Fibromyalgia

Definition: What is Fibromyalgia?

Fibromyalgia refers to a condition with a constellation of symptoms that include widespread aching, stiffness, fatigue, and the presence of specific body tender points. The presence of pain in fibromyalgia originates in the muscles and connective tissues of the body. Connective tissues contain fibrocytes, or fiber cells, muscles contain myocytes, or muscle cells, and together with the Latin word for pain, “algia,” the word fibromyalgia is constructed. The exact physiological process behind fibromyalgia has not been determined, but it is likely many factors, including those beyond the muscles and fibrous tissues, play a role.

Since many patients with joint and ligament pain have been referred to rheumatologists, to check whether inflammation is present that would respond to anti-inflammatory drugs, this medical specialty developed criteria for the diagnosis of this illness. The American College of Rheumatologists (ACR) defined fibromyalgia in 1990 as the presence of 1) body or joint pain above and below the waist, and on the right and left side of the body, 2) axial pain (most often neck or low back pain), and 3) 11 out of 18 possible tender points. Patients most often have associated fatigue, sleep disorders, irritable bowel syndrome, migraine headaches, immune system or endocrine system disorders. When the joints and ligaments are examined by clinicians, there is surprisingly little inflammation present for the amount of pain that is experienced. In fact, muscle and ligament examinations from biopsy samples characteristically show no unusual patterns of disease or inflammation. About 2-5% of the general population is considered to have fibromyalgia.

Etiology: What Causes Fibromyalgia?

As noted above, the cause of fibromyalgia has not been firmly established, and there may be more than a single factor that is responsible for this illness. Fibromyalgia has been noted to run in families which suggests that certain genes may play a role. Studies on identical twins will help to determine to what extent genes or environmental factors lead to illness. Environmental factors that have been proposed as causes include viruses, microbes, injury, or stress. All these causes are undergoing research.

Whatever the root cause or causes of fibromyalgia, the central nervous system, which includes the brain and spinal cord, appears to influence the nature of the illness. Investigators have noted changes in serotonin and other brain signaling molecules. Central nervous system levels of substance P appear to be higher in patients with fibromyalgia than that in normal individuals. Substance P is a signal for pain. Other changes noted to occur in the brain in fibromyalgia include changes in blood flow patterns to certain parts of the brain. One such area is called the thalamus. How these changes all relate to fibromyalgia is not known, but it appears that the processing of pain signals in the central nervous system may lead to amplified pain sensations. In this manner, small degrees of inflammation or injury that would otherwise lead to mild discomfort may cause significant pain.

Along with these changes in the neurological system, there appears to be endocrine abnormalities. Cortisol levels appear lower in fibromyalgia patients. This may be due to abnormalities in the hormone response of the adrenal glands to the hormone signals sent from parts of the brain called the pituitary gland and the hypothalamus.

Diagnosis: How Does One Determine the Presence of Fibromyalgia?

There is no reliably tested laboratory or imaging procedure that one performs to determine the presence of fibromyalgia. Clinicians therefore rely on a history, physical, and the ACR diagnostic criteria. If laboratory or X-ray studies are performed, it is usually done to make sure that other reasons for inflammation are not present. For example, one could have systemic lupus erythematosus, an inflammatory joint disease, along with fibromyalgia. The ACR criteria states that fibromyalgia is present when there is 1) body or joint pain above and below the waist, and on the right and left side of the body, 2) axial pain (neck, back or middle chest pain), and 3) 11 out of 18 possible tender points. Tender points are defined by pain perceived at 18 specific locations on the body when mild to moderate pressure is applied that is usually not experienced as painful in a normal individual. The locations of 9 tender points, one on both sides of the body, follow:

1. Occipitus (back of head): where one or more of these muscles insert: trapezius, sternocleidomastoid, splenius capitus, and semispinalis capitus.
2. Lower Neck on the Sides: at the front aspect of the spaces between the transverse processes of C5-C7.
3. Trapezius Muscle: at the midpoint of the upper border.
4. Supraspinatus Muscle: above the scapular spine near the medial border.
5. Second rib: lateral to the second costochondral junctions. This is often found when associated costochondritis (inflammation of the rib and sternum joints) is present.
6. Lateral epicondyle (just below the outer side of the elbow): 3/4 inches below the lateral epicondyle.
7. Gluteal: at the upper outer quadrant of the buttocks at the anterior edge of the gluteus maximus muscle.
8. Greater trochanter (outer side of the hip): just behind the greater trochanteric prominence.
9. Inner Knee: at the inner knee fat pad just above the joint line.

Nonetheless, despite these criteria, clinicians can often define the presence of fibromyalgia when these tender points are not present. Associated conditions are then helpful in making the diagnosis. When chronic fatigue, sleep disorders, migraine headaches, memory difficulties, clumsiness, costochondritis, irritable bowel syndrome, painful tailbone (coccydynia), low back pain, neck pain, interstitial cystitis, restless leg syndrome, and endometriosis are present with some, but not all of the other ACR criteria, fibromyalgia may be diagnosed by some clinicians. In this setting, where there is either early or incomplete fibromyalgia, as in the case of a chronic regional pain syndrome when only certain quadrants of the body is affected by pain, the diagnosis of fibromyalgia is difficult to conclusively determine. Fibromyalgia at this point can overlap with signs

of symptoms of other conditions that have similar manifestations. These can include depression and anxiety, which are more common in the general population than fibromyalgia, and post-traumatic stress disorder or chronic fatigue syndrome that may be less common. Often times the practicing clinician will chose to treat for fibromyalgia, though it can not be conclusively proven that it is present. The same treatment may help any overlap conditions as well.

Therapy: How Does One Treat Fibromyalgia?

Like high blood pressure or diabetes, there is no know cure for fibromyalgia. Rather, one teaches the patient on how to cope with the illness. Fibromyalgia can be successfully treated so patients can function despite what can otherwise turn into a disabling condition. Exercise remains on of the most important treatments for fibromyalgia, much as it is for high blood pressure or diabetes. Other physical treatments include massage, heat, stretching, and range-of-motion exercise. Many may say that an exercise worsens the pain initially, working through pain may eventually bring relief. Aerobics, particularly water aerobics, cycling, and yoga can be beneficial.

Cognitive behavior therapy or attention to one's mental health can also benefit fibromyalgia. Through this therapy, often provided by psychologists, one can obtain insights as to how one's unique mental stressors that may exacerbate one's own illness. Relaxation and anger management can lead to improvement in the signs and symptoms of fibromyalgia. Depression or anxiety can often precede or manifest after fibromyalgia, so that cognitive behavior therapy can lead to benefit, or prevent future mental illness. This therapy helps one to understand one's limits and permit one to learn how to say "no," which may be difficult for those who are overachievers and have this illness.

Medications for depression or anxiety can be useful. Amitriptyline (Elavil™) is an anti-depressant that has been found to be useful in promoting sleep and decreasing pain. Taken at nighttime, this is often the first medication used in treating fibromyalgia. Sometimes other anti-depressants are also found useful. These may include many of the selective serotonin reuptake inhibitors, such as sertraline, venlafaxine, paroxetine, or fluoxetine. Other medications that may help the symptoms of fibromyalgia are tramadol, cyclobenzaprine, bupropion and gabapentin. Biofeedback and acupuncture may be useful. Each individual appears to respond differently to these medications or modalities, and only by a trial can one see whether one works or not.